**Kelsey McGrath**

**Grade 4**

**Lesson Topic: New York City Clean Drinking Water**

**Time: 1-2 Days**

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| **Essential Question:** How do natural events affect our world? | | |
| **Instructional Outcome:** I can identify and describe the New York City Waterway and design a water filtration system by referring to the text and working collaboratively. | | |
| **Description:**  Every day, the average American uses about 50 gallons of water for drinking, bathing, cooking, and maintenance. Most people, however, are unaware of the source of their water. New York City’s tap water is internationally renowned for its quality. New York is one of only five large cities in the country permitted to run a largely unfiltered drinking water supply, under the City’s comprehensive watershed protection programs. “Our city’s tap water is renowned for its quality and health. Drinking tap water from homes and public water fountains instead of bottled water saves money and helps form environmentally-friendly habits,” said Council Member Costa Constantinides, Chair of the Council’s Environmental Protection Committee.  *(DEP, 2017; Environmental Education: Where Does Your Water Come From?, June 1998)*  **Objectives:**  Students will be able to identify and describe the New York City Water System by referring to the text.  Students will be able to design a water filtration system by working collaboratively. | | |
| **Common Core Standards Met:** RI4.1, RI4.3, RI4.7, SL4.1, SL4.4 | | |
| **Danielson Standards Met:** 3b, 3c, 3d | | |
| **Vocabulary:**  water cycle (review)  water system  reservoirs  watershed  water filtration | **Materials:**  Water Cycle Dance: http://www.nyc.gov/html/dep/pdf/environmental\_education/lesson-nyc-water-cycle-rain-dance.pdf  NYC Water Supply Map: http://www.nyc.gov/html/dep/html/drinking\_water/wsmaps\_wide.shtml  Book: The Magic School Bus at the Waterworks: Special New York City Edition  Container of dirty water (soil and water)  small plastic cups with holes on the bottom (1 per group)  plastic jars (1 per group)  Play money  cotton balls  panty house  small gravel  large gravel  coffee filters | |
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| **Learning Activities: (Approx.10 minutes)** | | |
| * **Engage:** Pose the question, "Where do you think your drinking water comes from?" Take student responses such as *rain, reservoirs, upstate, etc.* * **Review**: Display the NYC Water Supply Map. Inform students that we are going to pretend that we are in the Catskill Mountains (locate on map), over 125 miles away and a rainstorm is brewing. Have students copy your movements for the rain, water flowing down the mountains, rivers and streams over flowing, and rain falling into the reservoirs. Whisper that our rainstorm is over and remain silent for a few seconds. Review vocabulary and learning target. * **Teach:** Read the book, The Magic School Bus at the Waterworks: Special New York City Edition. While reading, review the water cycle and continue to identify where the class is on the map by highlighting on the map or having students point on their maps. Ask students what is the most important part of the water system and to explain their answers with a partner. Share student responses such as *cleaning the water.*"What would happen if a part of the water system was missing?" *We would have dirty water and could not survive.* Just as the New York City Water System cleans our drinking water, each table will form their own cities and must clean their drinking water for the safety of its citizens. Display bottle and materials. Model a sketch with sample materials and a proposed plan to purchase materials. Review rubric and expectations. * **Brainstorm:** Have students independently sketch their water filtration designs and propose a plan as to why they need each material. * **Collaborate:** Have students meet in groups to share their designs and plans. Give students time to create a group design, gather their money, and present a proposed plan to purchase materials for their water filtration system. After the group presents their design and proposed plan, they may purchase materials and test their design. The group should reflect on their water filtration system. Is there water drinkable? Explain. The group should make revisions and re-test their designs if they have leftover funds. | | |
| **DOK Questioning:** | | |
| What would happen if a part of the water system were missing?  What do you think is the most important part of the water system? Explain. | | |
| **Reflect and Connect:** | | **Assessments:** |
| * **Review LT**   Students will participate in a gallery walk to view each other's results and reflections. Students will leave any questions or comments they have on sticky notes.  Turn and Talk: What is one question you still have about water? | | **◻** Quick Check ◻ **Student Work**  ◻ Survey ◻ Feedback  ◻ Exit Slip ◻ Share  ◻ **Discussion** ◻ Observation  ◻ **Questioning** ◻ **Rubric**  ◻ Checklist  ◻ Other: |

**City Water Filtration Project**

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| Sketch | Student has clearly included all necessary information with labels. | Student has included most of the necessary information with labels. | Student has included some of the necessary information with some labels. | Student has not included necessary information and has no labels. |
| Plan | Student has written a clear plan with a purpose for each material and no errors are included. | Student has written a plan with a purpose for most material and/or few errors are included. | Student has written a plan with a purpose for some material and/or many errors are included. | Student has written a plan with a purpose for few material and several errors are included. |
| Reflection | Student has clearly written a paragraph describing the experiment with several details and no errors. | Student has written a paragraph describing the experiment with many details and/or few errors. | Student has written a paragraph describing the experiment with few details and/or many errors. | Student has written less than a paragraph describing the experiment with no details and several errors. |
| Collaborative Work | Student participated in group discussions and collaborative work by staying on topic, and asking and answering questions in a respectful way. | Student mostly participated in group discussions and collaborative work by staying on topic, and asking and answering questions in a respectful way. | Student somewhat participated in group discussions and collaborative work by staying on topic, and asking and answering questions in a respectful way. | Student did not participate in group discussions and collaborative work and did not stay on topic or ask and answer questions in a respectful way. |